



U.S. DEPARTMENT OF
ENERGY

Office of
Science

Accelerator Stewardship Test Facility Program

Fall 2018

*Eric R. Colby**

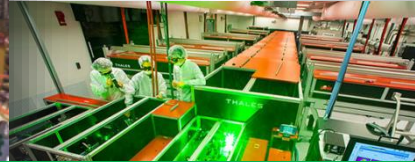
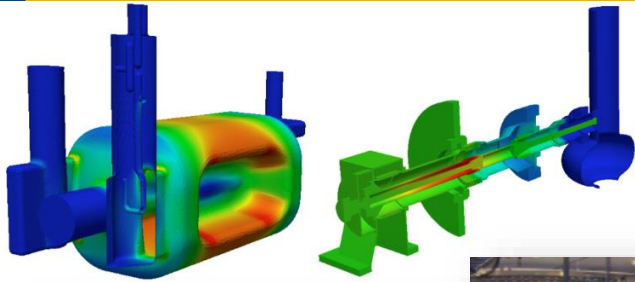
Senior Technical Advisor

Office of High Energy Physics

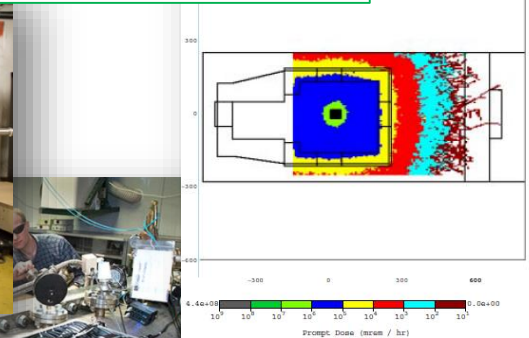
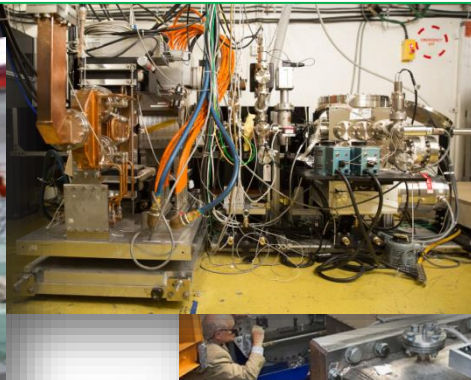
Office of Science, U.S. Department of Energy

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DOE Office of Science Accelerator R&D Capabilities



These are just a few of the more than 50 specialized accelerator R&D capabilities across the DOE SC complex...

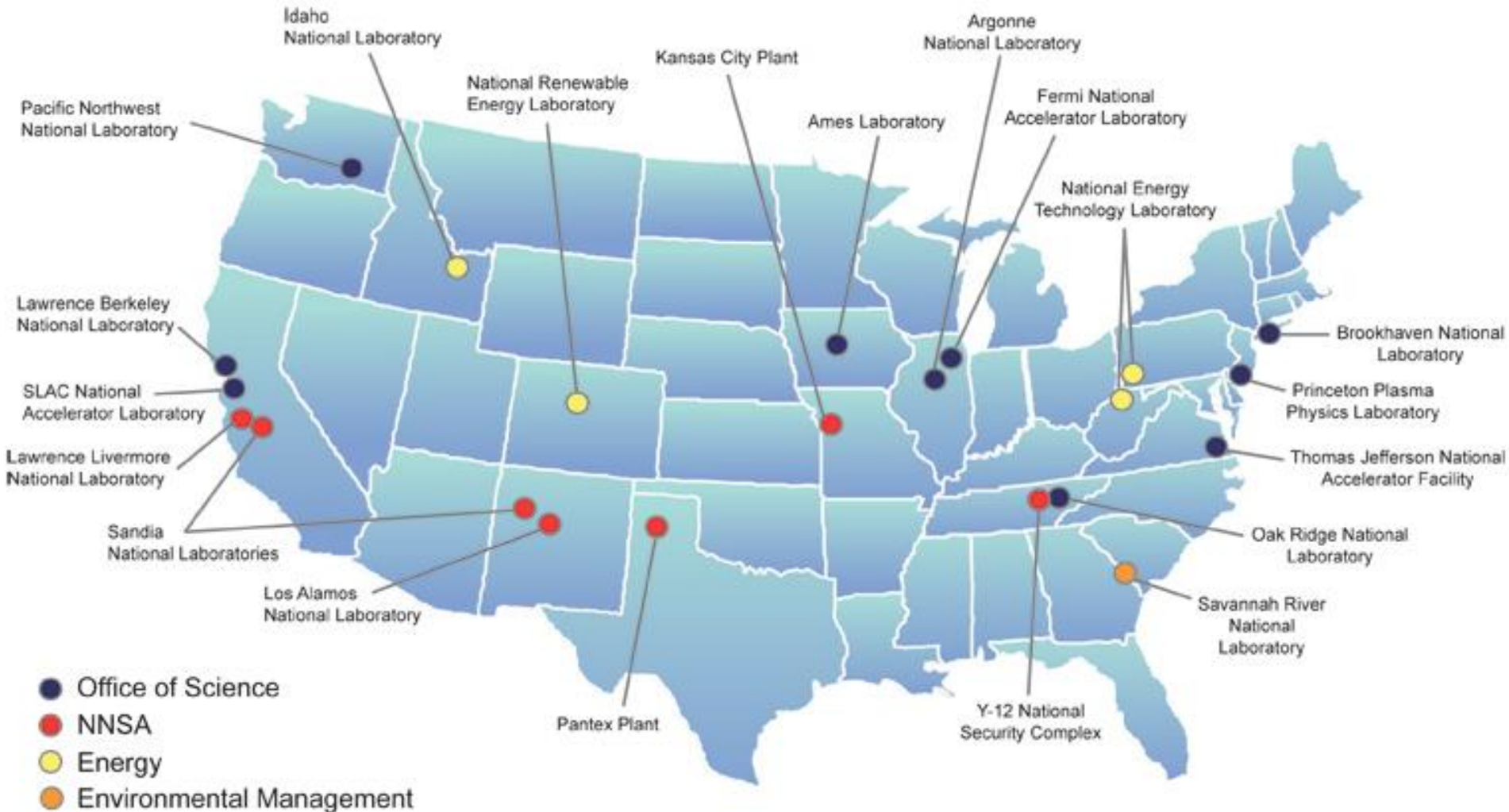


DOE Office of Science Accelerator R&D Capabilities

- ▶ Many unique accelerator R&D capabilities have been developed to support the scientific research of the Office of Science:
 - ▶ **Accelerator Design & Engineering**
 - ▶ Beam physics and high-performance computing expertise
 - ▶ Design and engineering of accelerator components
 - ▶ **Fabrication & Component Testing**
 - ▶ Superconducting cable/strand and cavity preparation and testing facilities
 - ▶ Magnet test facilities
 - ▶ Radiofrequency and laser test facilities
 - ▶ Fabrication and materials characterization facilities
 - ▶ **Particle Beam Testing Facilities**
 - ▶ Provide electrons, neutrons, protons, light and heavy ions, x-rays, gamma rays, ...
 - ▶ **And more!**



This is how DOE National Laboratories see themselves...

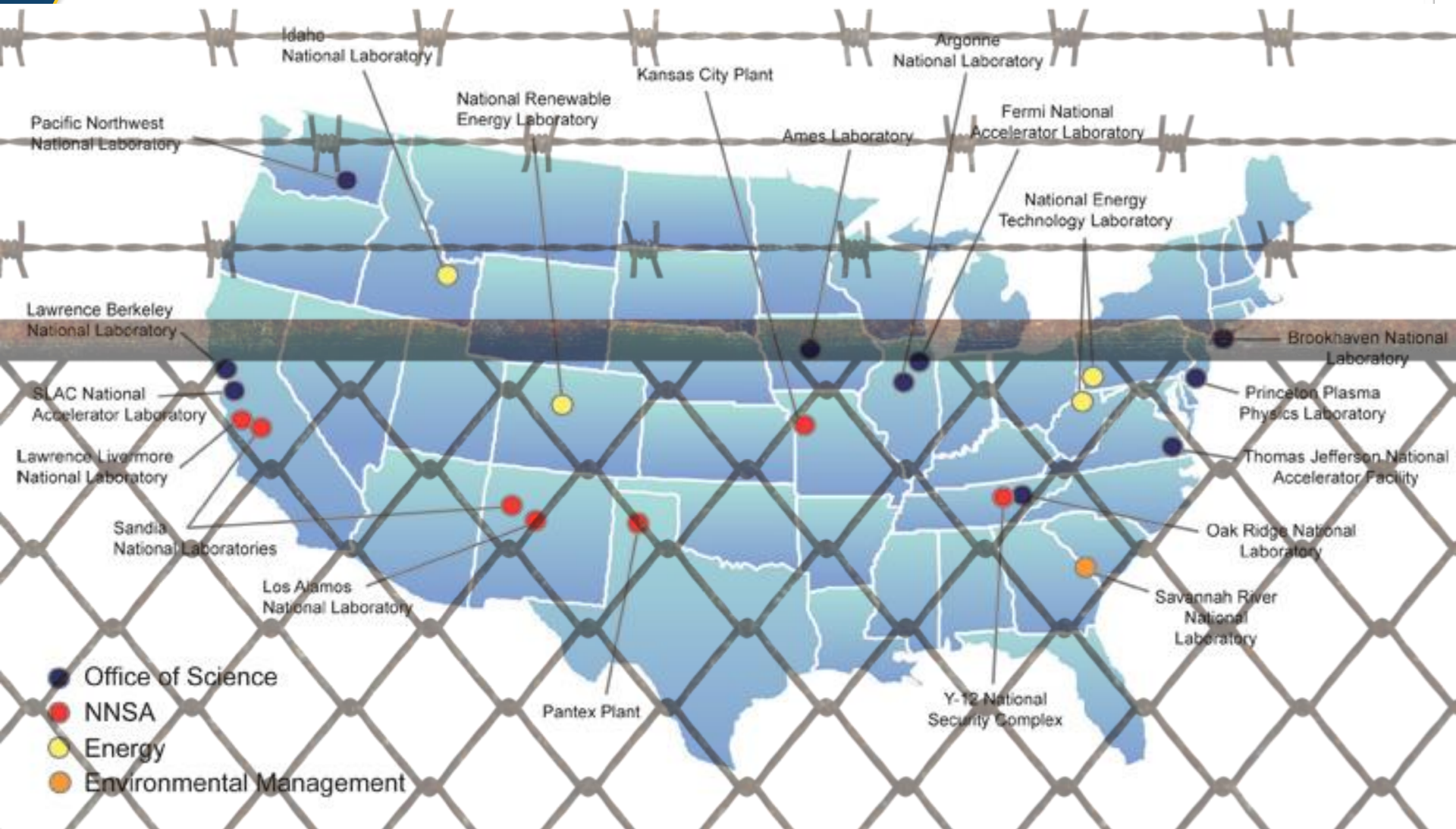


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Slide courtesy of Eric Isaacs

...and this is how industry has viewed us.



Accelerator Stewardship Test Facility Program

- ## 2015 Outreach Event by Institution Type
- | Institution Type | Percentage |
|------------------|------------|
| University | 25% |
| Laboratory | 15% |
| Industry | 58% |
| Financial | 1% |
| Governmental | 1% |
- ## 2015 Outreach Event
- ### BROOKHAVEN NATIONAL LABORATORY
- #### Accelerator Expertise and Test Facilities
-
- Brookhaven (BNL) is a multi-disciplinary research institution that is primarily funded by the U.S. Department of Energy's Office of Science (DOE). BNL is known globally for the achievement of scientific and technological research. The facility has a long history of research and development programs in particle physics, nuclear physics, and materials science.
- The experience of Brookhaven Laboratory, US Congress for the first time in FY2015, is a significant milestone. Following that, DOE initiated the Accelerator Innovation Program, aimed at offering access to accelerators related to DOE's mission.
- BNL's extensive R&D infrastructure is available today. By DOE, we would like to offer the opportunity to bring innovative equipment and/or develop new products or processes. Brookhaven is open.
- Through this exciting pilot program, we would like you to take the first step at Brookhaven (BNL). You will receive a letter, and you will be invited to participate in the Accelerator Innovation Program. Please contact DOE's Office of Science (DOE) at (202) 344-1145 or (202) 344-1146.
- #### Facility
- The higher energy particle accelerators, facilities such as the Accelerator Test Facility (ATF) and the Brookhaven National Laboratory (BNL) provide experimental and theoretical research of accelerators technologies, with a view to develop innovative and novel types of particle accelerators.
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- #### RF Systems
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- #### Challenges and Kickers
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- BERKELEY LAB
BRIDGE TO INNOVATION THROUGH THE LABORATORY
- ATAP
ACCELERATOR TECHNOLOGY & APPLIED PHYSICS DIVISION
- Out of Us Programs News Publications Partnering
- ATAP is a wide variety of ways to work with ATAP. Arrangements for collaborative work, after your initial contact, can be made with the help of the LBNL Accelerator and Capabilities Office. They are working on building technologies and are familiar with the LBNL portfolio of study and the request that you can find frequently used contacts and brief descriptions of areas of expertise. You may also be interested in other facilities and Capabilities portfolio website. That site describes key characteristics of accelerators within the LBNL, where users can get assistance, as well as detailed R&D strategies in DOE and elsewhere.
- June 5 Technology Transfer Outreach Event
are slides from the June 5, 2015 Accelerator Facilities and Capabilities website.
- A brief technical overview of our capabilities is ATAP Division Deputy for Technology Support Program. States from representation to the DOE-ORNL Accelerator Innovation Test Facility Pilot Program presentation by DOE Program Manager Eric Coffey, are prepared.
- Arrangements with facilities
A presentation by Betty Gosselin, Chairman's Office in the Berkeley Lab Innovation and Partnering Office, the business aspects of working with the Laboratory.
- #### RF Systems

"One-Stop Shopping" for finding Accelerator R&D Capabilities at the DOE Office of Science National Laboratories

<http://www.acceleratorsamerica.org>

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Accelerators for America's Future
is a portal to the accelerator R&D capabilities at the SC National Labs

- ✓ Learn what's available
- ✓ Find a contact to speak with

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Working with the National Laboratories

Particle accelerators are useful tools for defense and security, energy, the environment, industry and medicine as well as for discovery science. National laboratories make facilities available for the development of accelerator-based technology for a wide variety of applications for science and society.

The Department of Energy's Office of Science operates a number of accelerator-based user facilities across the United States. Besides facilitating scientific discovery, these facilities serve as resources for universities, private industry, and other centers for science and technology research and development. In addition, the national laboratories have considerable accelerator-related infrastructure, such as radio-frequency technology and magnet test stands, and beam physics expertise that can serve as resources to the broader community. Learn more about the accelerators, accelerator-related facilities and partnering possibilities below.

Argonne National Laboratory

The Argonne Accelerator Institute is the focal point for using Argonne's extensive accelerator resources, enhancing existing facilities, determining the future of accelerator development and construction, and overseeing a dynamic and acclaimed accelerator physics portfolio.

[Learn more >](#)



Brookhaven National Laboratory

Brookhaven National Laboratory, operator of several accelerator complexes, has a global reputation for advancing the frontiers of accelerator technology and accelerator-based science. Brookhaven's state-of-the-art facilities are available to industry for research and development.

[Learn more >](#)



Fermi National Accelerator Laboratory

At Fermilab's Illinois Research Center, scientists and engineers from Fermilab, Argonne and Illinois universities will work side by side with industrial partners to research and develop breakthroughs in accelerator science and translate them into applications for the nation's health, wealth and security.

[Learn more >](#)



Jefferson Lab

Jefferson Lab is recognized as a world leader in accelerator science as a consequence of planning, building, maintaining and operating the Continuous Electron Beam Accelerator Facility, CEBAF. CEBAF was the first large-scale application of superconducting radiofrequency technology in the world. Operating and maintaining CEBAF requires a sophisticated computer system to control hundreds of thousands of hardware components, including complex cryogenic, microwave, vacuum and magnet systems. The Lab also pursues a broad program of theoretical and experimental research in accelerator and beam physics.

[Learn more >](#)



Lawrence Berkeley National Laboratory

Particle accelerators have come a long way since Ernest Orlando Lawrence invented the cyclotron and founded the laboratory that now bears his name. Today, accelerators are vital to answering a wide range of questions, from "What is the underlying structure of matter?" to "How do you quickly check a cargo container for explosives?" to "Where can we get electricity without fossil fuels?" On this site you can learn about our core programs and the larger world of accelerators and their uses.

[Learn more >](#)



SLAC National Accelerator Laboratory

Thousands of scientists from all over the world use our cutting-edge accelerator facilities each year. SLAC National Accelerator Laboratory is developing the next generation of accelerator technology for science, medicine, industry and homeland security, and we collaborate with industry on research aimed at developing useful products.

[Learn more >](#)



Brookhaven Accelerator Science

Accelerator Science is a key component of Brookhaven National Laboratory's research program. The U.S. Department of Energy operates the Brookhaven National Laboratory, one of the nation's premier laboratories for research in particle physics and nuclear science. Brookhaven's research program is focused on understanding the fundamental structure of matter and the forces that govern it. Brookhaven's research program is also focused on understanding the fundamental structure of matter and the forces that govern it.

Brookhaven's Expertise in Accelerator Science and Technology

The Brookhaven team brings together people, resources and expertise in Brookhaven and the Department of Energy's Office of Science. Brookhaven's research program is focused on understanding the fundamental structure of matter and the forces that govern it. Brookhaven's research program is also focused on understanding the fundamental structure of matter and the forces that govern it.

Partner with Brookhaven

Brookhaven is a leading center for research in particle physics and nuclear science. Brookhaven's research program is focused on understanding the fundamental structure of matter and the forces that govern it. Brookhaven's research program is also focused on understanding the fundamental structure of matter and the forces that govern it.



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ASTFP Program Timeline

- ▶ 2015: First public outreach events and awards
 - ▶ Early 2017: Start of annual calls for ASTFP proposals
 - ▶ Early 2018: 2nd annual call for ASTFP proposals
- ▶ **November/December 2018: Public outreach events**
 - ▶ BNL – November 28
 - ▶ FNAL & ANL – December 5 & 6
 - ▶ JLAB – December 17
 - ▶ LBNL, ORNL, SLAC – no events planned this year
- ▶ **Early 2019: 3rd annual call for ASTFP proposals**
 - ▶ “Track 3” of the Accelerator Stewardship annual solicitation
- ▶ **Summer 2019: Awards issued and work begins**
 - ▶ Final reports due in fall 2020
- ▶ Early 2020: Next call for proposals...



***Thank you for taking time to visit
your National Laboratories!***

*Before you leave today, please take a moment and tell your Lab
hosts how to make this event even more useful in the future!*



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Image courtesy of Oak Ridge National Laboratory

Useful Resources

- ▶ The HEP Accelerator Stewardship program is described at:
 - ▶ <http://science.energy.gov/hep/research/accelerator-stewardship/>
- ▶ Accelerator Stewardship solicitations may be found at:
 - ▶ <https://science.energy.gov/hep/funding-opportunities/> and
 - ▶ www.grants.gov
- ▶ The HEP Accelerator Stewardship program has developed the Accelerator for America's Future website to serve as a portal to the SC accelerator facilities:
 - ▶ <http://www.acceleratorsamerica.org/working-with-labs/index.html>
- ▶ More generally, the DOE Office of Technology Transitions maintains:
 - ▶ "How-to" guides for interacting with the labs:
 - ▶ <https://www.inl.gov/wp-content/uploads/2016/05/Revised-Guide-Partnering-with-National-Labs-Final.pdf>
 - ▶ A general "Portal" for Business to find DOE Labs facilities of all kinds:
 - ▶ <http://www.energy.gov/technologytransitions/who-do-i-contact-labs>
 - ▶ A detailed list of all kinds of facilities:
 - ▶ <http://www.energy.gov/technologytransitions/technology-transitions-facilities-database>

